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ABSTRACT

Today's changing educational scene demands more materials of more varieties, more related services, more personnel, and more space for media centers and services. The handbook attempts to provide a clearer understanding of space planning problems and of a vocabulary for communication among the various personnel involved in design. Educational decisions and planning steps are discussedfirst, and a chronology and staff involvement chart are presented. Functional relationships are outlined, and space juxtapositions diagramed. Design considerations, furniture and equipment, and special installations are also discussed. A categorized bibliography is included. (SH)

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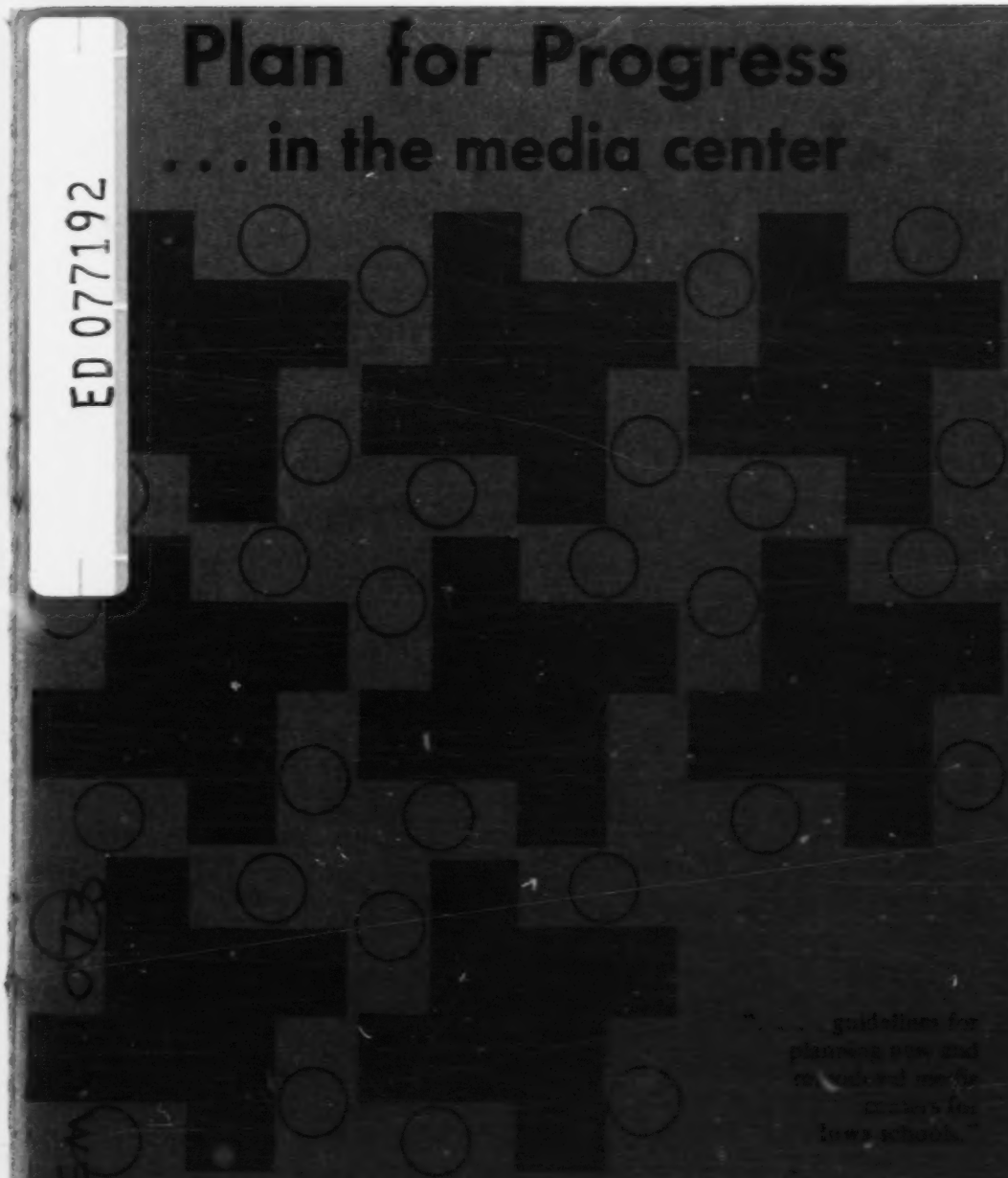
Plan for Progress
. . . in the media center



guidelines for planning new and remodeled media centers for Iowa schools

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Members of the handbook committee

Betty Jo Buckingham
Handbook Writer and Library Consultant
Educational Media Section
Department of Public Instruction
Grimes State Office Building
Des Moines, Iowa 50319

Robert Foley
Director of Media Services
Cedar Rapids Community School District
346 Second Avenue S.W.
Cedar Rapids, Iowa 52404

Leonard L. Gustafson
Consultant
School Plant Facilities
Department of Public Instruction
Grimes State Office Building
Des Moines, Iowa 50319

Virgil Kellogg
Chairman Handbook Committee and Audiovisual Consultant
Educational Media Section
Department of Public Instruction
Grimes State Office Building
Des Moines, Iowa 50319

Mary Lou Kirk, Librarian
Valley High School
1140 35th Street
West Des Moines, Iowa 50265

Richard R. Lahde
Superintendent
Clear Lake Community School District
125 North Twentieth Street
Clear Lake, Iowa 50428

John P. Locke, Architect
Charles Herbert and Associates, Inc.
709 Bankers Trust Building
Des Moines, Iowa 50309

James A. Lynch, Architect
Lynch, Payne, Champion and Bernabe, Inc.
314 Savings and Loan Building
Des Moines, Iowa 50309

David L. Moorhead
Superintendent
Ames Community School District
Sixth and Clark
Ames, Iowa 50010

Gayle Obrecht, Chief
School Plant Facilities
Department of Public Instruction
Grimes State Office Building
Des Moines, Iowa 50319

William B. Ostenby, Director
Audio-Visual Center
University of Iowa
East Hall
Iowa City, Iowa 52240

Roger Volker, Director
Instructional Resources Center
Iowa State University
318 Curtis Hall
Ames, Iowa 50010

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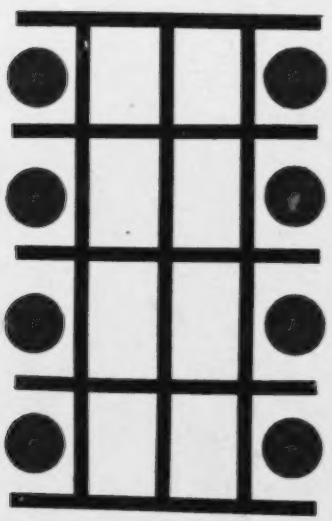

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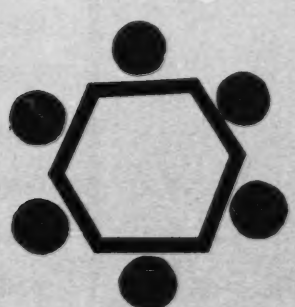
State of Iowa
Department of Public Instruction

Preface

This handbook has been prepared by a committee composed of representatives of the American Institute of Architects, Iowa Chapter; the Iowa Association of School Administrators; the Iowa Educational Media Association, a 1972 merger of the Audiovisual Education Association of Iowa and the Iowa School Library Media Association (formerly the Iowa Association of School Librarians); and the School Plant Planning, and Educational Media Sections of the Iowa Department of Public Instruction. It is being financed jointly by the Iowa Educational Media Association and the Iowa Department of Public Instruction.

This handbook continues the **Plan for Progress in the Media Center** series and supplements the other volumes. It provides guidelines for planning new or remodeled media centers for Iowa schools. Since this publication could not be designed as a detailed manual for plant planning, the bibliography lists publications to provide more specific assistance.



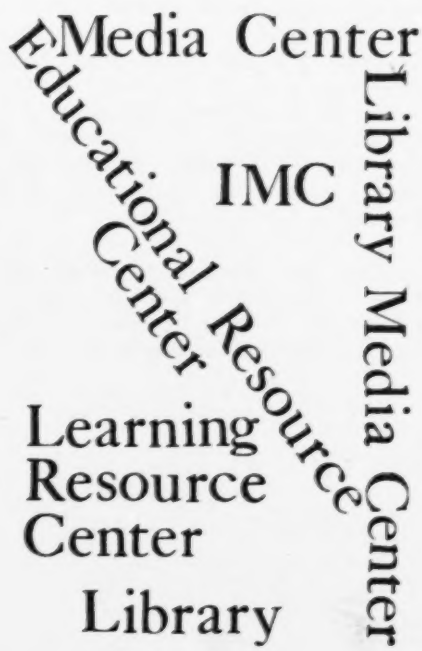
Introduction

Today's changing educational scene demands more materials of more varieties, more related services, more personnel, more space - and more flexible space - for media centers and services.

A plan for this increased space may be part of a total new plant plan, an extensive remodeling plan, or a minor face lifting. In any case, the media staff, teachers, building and district level administrators, and school board members may be involved. Frequently architects, contractors, lay citizens, and students may be concerned with the planning. All need a clear understanding of the total problem and a similar vocabulary. This handbook attempts to forward that understanding and to provide that vocabulary. It does so by defining the kinds of questions to be answered in preparing educational specifications that will provide specific guidance for development of the physical plant. While a building or remodeling program would often require a bond issue, that problem is not considered to be within the scope of this booklet.

The term **media center** is used throughout this handbook to designate a centralized collection of materials, production facilities, instructional hardware, and services with a staff of professional personnel working closely with students, teachers, and administrators. It may include satellite centers controlled and staffed by the central unit, decentralized equipment storage areas, and long term loans of equipment and materials to classrooms. School systems may use other terms for a media center, e.g., instructional materials center, learning resource center, library, library media center. Regardless of the terminology and scale of the proposed facility, this handbook offers guidelines to planners.

". . . . . more flexible space - for media centers and services."



STEPS

Educational Decisions

Building, expansion, or remodeling of media center facilities can involve many people and should involve much careful planning. This handbook strives to provide assistance in this planning with particular emphasis on the preparation of educational specifications. Educational specifications can be defined as a detailed analysis of the educational activities to be pursued in a given facility, "a word designation of the type and contents"[1] of the media center that is needed.

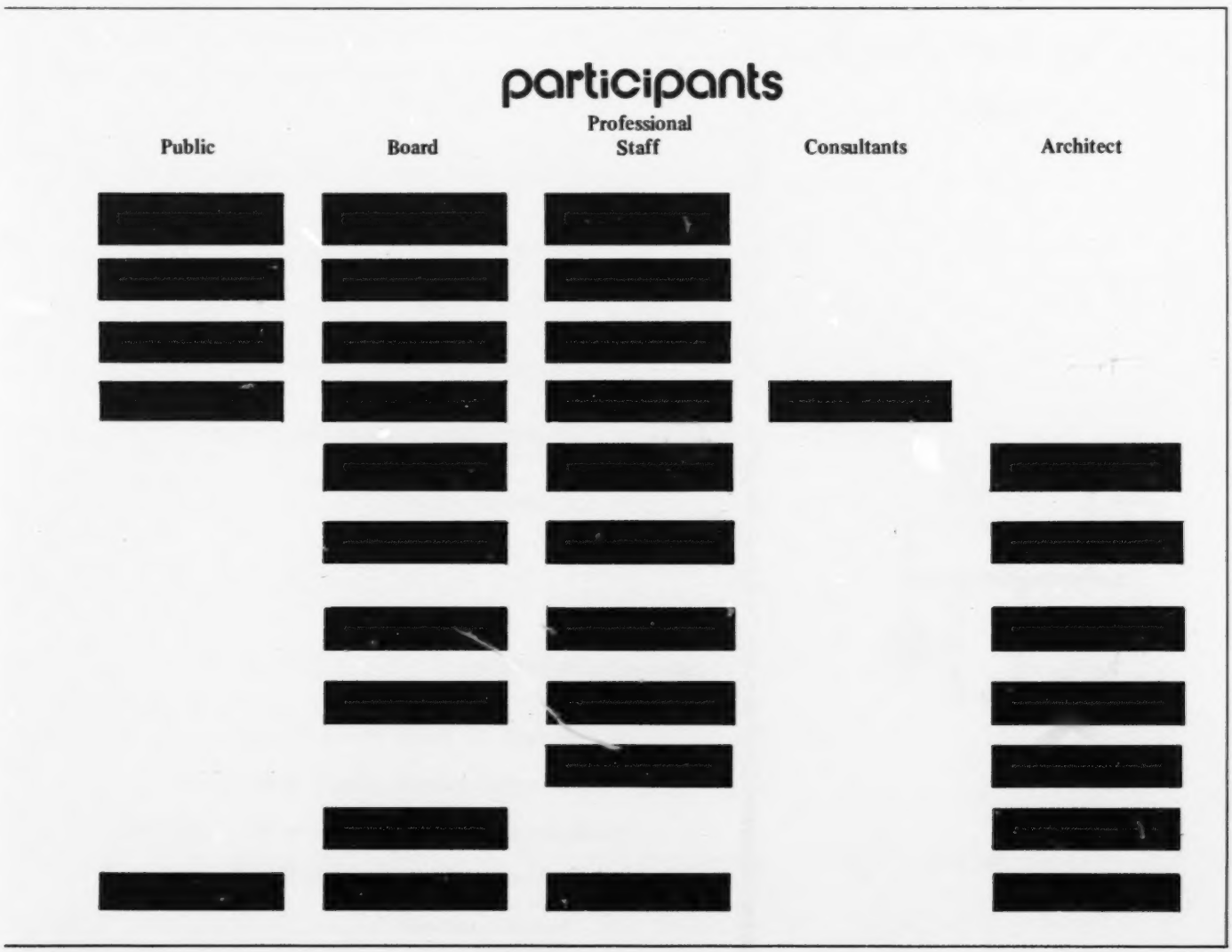
This chart attempts to outline the steps needed in planning media centers in approximate chronological order and indicate the groups of people who would be involved at each step.

steps

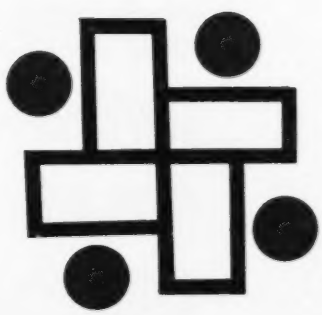
1. Recognize and discuss problem
2. Form action Committee(s)
3. Consult specialists concerning educational specifications
4. Develop, revise, and approve educational specifications
5. Select architect
6. Prepare, revise, and accept schematic designs and preliminary building specifications
7. Prepare, revise, and approve working drawings, building and equipment specifications
8. Accept building and equipment bids, together or separately
9. Build or remodel media center
10. Accept facility
11. Hold open house

1. Englhart, p. 23

IN PLANNING


participants
Public
Board
Professional Staff
Consultants
Architect

Planning the Media Center



General Philosophy

The Educational Decisions needed in planning a media center begin with a general philosophy based on

- A long-range program considering economic and sociological factors, population make-up and migration in and out, geography, zoning, and transportation problems
- The purposes of the school
  - What the community can, should, and will do to educate its people
- The program of the school
  - Size, age, and special needs of the student body
  - Course offerings
  - Size of staff
  - Co-curricular and extracurricular offerings
  - Methods and approaches
  - Use of facility by non-school people and/or during non-school hours
- Funds available now and in the future

Philosophy of Media Service

The Educational Decisions needed in planning a media center require a philosophy of media service related to

- Influence of general philosophy on media services
- Commitment to staff, facilities, budget for media services
- Size and variety of collections to be housed
  - Print materials
  - Non-print materials
  - Equipment

- The instructional role of the media center
  - Separate courses
  - Integrated skills instruction
  - Center as extension and laboratory for classroom

- Influence of learning and instructional strategies on media services

- Degree of centralization of materials, equipment, and services
  - Presence or absence of department or satellite learning centers
  - Amount of equipment to be housed in classrooms, floor level storage areas, or departments

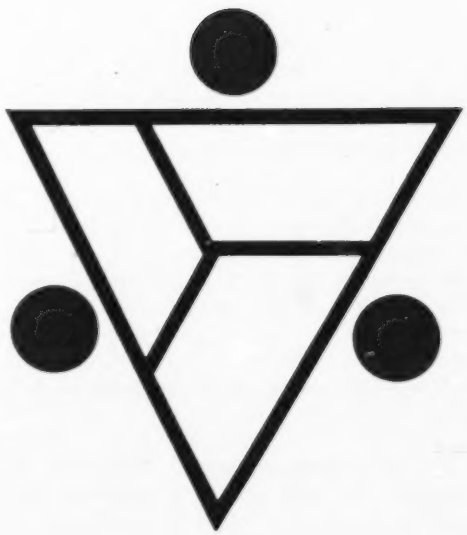
- Location and scope of professional library

- Controls and/or security measures desired
  - Probable number of items to be checked in and out in one day
  - Effect on placement of storage
  - Effect on number and placement of staff

- The amount of materials processing to be handled in this building

- The amount of materials production to be handled in this building
  - Amount of involvement of teachers and students

- Size and responsibilities of media center staff
  - Librarians, audiovisualists, and/or media specialists
  - Technicians and clerks
  - Student assistants

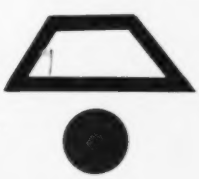


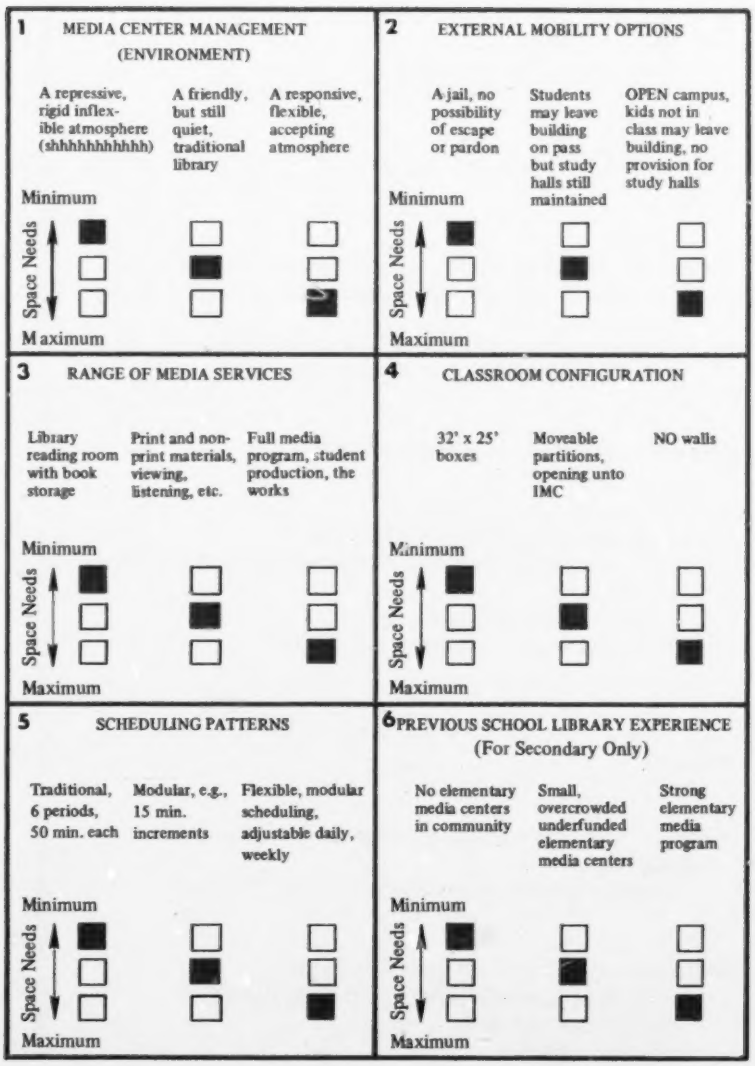
VARIABLES IN MEDIA CENTER PLANNING

In the literature available to media center planners, recommendations concerning the size of the center and the space dedicated to certain basic functions tend toward simple square footage requirements, with little consideration for the many variables which can and do affect physical requirements. The purpose of this chart is to encourage consideration of the following variables, which experts have designated as having significant implications for the size and design of a media center, so that appropriate decisions can be made during the initial planning stages.

A selected sample of Iowa media personnel was asked to respond to a questionnaire based on these variables. A colored rectangle in a vertical column indicates the combined opinion of those persons included in the sample concerning the influence of the variables on space requirement. A column without a colored rectangle indicates that there was no agreement on the influence of that variable.

The local needs assessment chart gives an opportunity for local schools to visualize their own needs.




1 MEDIA CENTER MANAGEMENT (ENVIRONMENT)
A repressive, rigid inflexible atmosphere (shhhhhhhhhhh)
A friendly, but still quiet, traditional library
A responsive, flexible, accepting atmosphere
Minimum
Space Needs
Maximum
2 EXTERNAL MOBILITY OPTIONS
A jail, no possibility of escape or pardon
Students may leave building on pass but study halls still maintained
OPEN campus, kids not in class may leave building, no provision for study halls
Minimum
Space Needs
Maximum
3 RANGE OF MEDIA SERVICES
Library reading room with book storage
Print and non-print materials, viewing, listening, etc.
Full media program, student production, the works
Minimum
Space Needs
Maximum
4 CLASSROOM CONFIGURATION
32' x 25' boxes
Moveable partitions, opening unto IMC
NO walls
Minimum
Space Needs
Maximum
5 SCHEDULING PATTERNS
Traditional, 6 periods, 50 min. each
Modular, e.g., 15 min. increments
Flexible, modular scheduling, adjustable daily, weekly
Minimum
Space Needs
Maximum
6 PREVIOUS SCHOOL LIBRARY EXPERIENCE (For Secondary Only)
No elementary media centers in community
Small, overcrowded underfunded elementary media centers
Strong elementary media program
Minimum
Space Needs
Maximum

7 LEVEL

Senior High | Junior High | Elementary

Minimum

Space Needs

Maximum

8 EASE OF ACCESS TO MEDIA CENTER

Kids get passes from teachers, need good reason to go to IMC | Student controlled students attend IMC whenever they wish (during free time) | Students attend without passes, but need to stay in IMC whole period

Minimum

Space Needs

Maximum

9 INSTRUCTIONAL STRATEGIES

Lecture, talk at kids, etc. | Some small group and individual teaching | Personalized instruction, manually or computer managed

Minimum

Space Needs

Maximum

10 EXTENDED HOURS

Open 8-4 only, no exceptions | Open 1 or 2 evenings a week | Open evenings Saturdays, etc.

Minimum

Space Needs

Maximum

11 OTHER AVAILABLE LIBRARY FACILITIES

None | Average Public Library | Strong, cooperative, university, college and public libraries

Minimum

Space Needs

Maximum

12 ADMINISTRATIVE CLIMATE

NON-SUPPORTIVE, the principal thinks you're a drag | Benign neglect of media services | Responsive, intelligent, enlightened type of administrative support

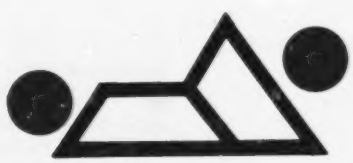
Minimum

Space Needs

Maximum

LOCAL NEEDS ASSESSMENT

	Minimum	Average	Maximum
1. Media Center Management (Environment)	☐	☐	☐
2. External Mobility Options	☐	☐	☐
3. Range of Media Services	☐	☐	☐
4. Classroom Configuration	☐	☐	☐
5. Scheduling Patterns	☐	☐	☐
6. Previous School Library Experience	☐	☐	☐
7. Level	☐	☐	☐
8. Ease of Access to Media Center	☐	☐	☐
9. Instructional Strategies	☐	☐	☐
10. Extended Hours	☐	☐	☐
11. Other Available Library Facilities	☐	☐	☐
12. Administrative Climate	☐	☐	☐

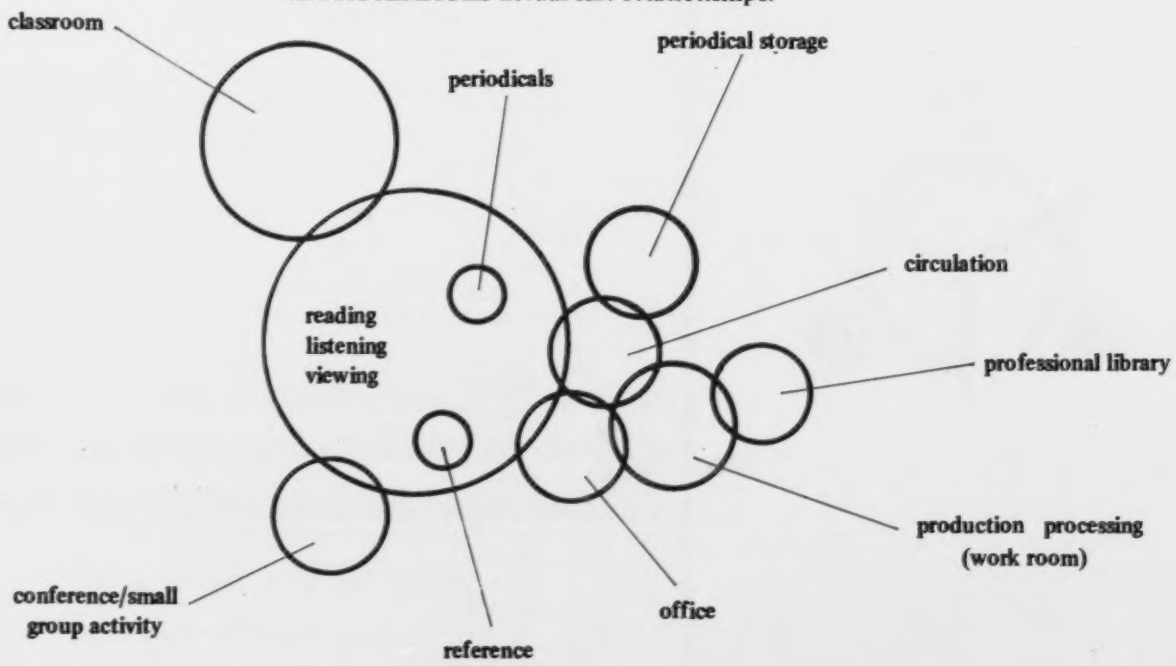


Functional Relationships

Reading-listening-viewing (RLV):	Accommodates shelving for all types of materials, including current periodicals, either in open or secured areas, a browsing area for display of new items, space for individual students to interact directly with all types of materials, listening stations for use of non-print materials. (Listening stations should be subject to direct supervision from administrative areas.)
Conference/small group activity area:	Rooms or semi-private areas, 10' x 10' or larger. Subject to supervision (visible) from administrative areas.
Classroom:	Room to accommodate one class, opening immediately onto RLV area.
Office:	Administrative area, with desks for staff, storage for professional materials, closet and other appropriate storage. Glass front onto RLV area beginning 42" or less from floor.
Circulation:	Control point for all materials. **This should be near the entrance to and exit from the media center** and should be in the RLV area, very close to and accessible from the administrative area (office).
Periodical storage:	An area for the storage and retrieval of periodical back issues. This is a circulation function and should be directly adjacent to the circulation point. This area may be combined with the production/processing area (workroom).
Reference:	Part of the RLV area, but one requiring frequent professional assistance. It should be easily accessible from the office and circulation.
Production-Processing:	An area or areas for the technical processing services performed at the building level in the same or separate quarters as an area for production or reproduction of print and nonprint materials. The latter may involve graphic, photographic and TV production. Should be easily accessible from office and RLV areas with supervision (visible) from one or both of these areas unless permanent adult staff will be assigned to the area(s).
Professional Library:	An area for faculty library - study. It is convenient for this to adjoin processing and RLV.

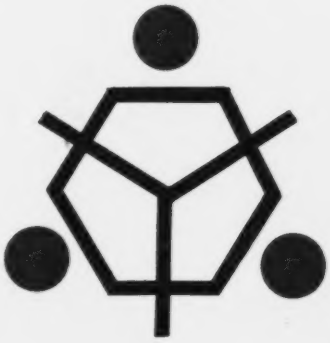
Space Identity & Relationship

Function influences the kind, size, and juxtaposition of spaces. This diagram attempts to name the needed spaces and point out the interrelation of the various areas. The intersections of circles with one another indicate overlapping administrative or clerical functions which should be located adjacent to each other. The size of the various circles only **APPROXIMATES** actual size relationships.



SPACE REQUIREMENTS

These recommendations are based on widely accepted standards. However, there is evidence to indicate that school media centers regardless of level, given the same number of students, should be the same size.



Entrance Area (Circulation)
Display, check-out, card catalog, reserved materials

Reading-Viewing-Listening Room
Browsing, study, individual listening and viewing, storytelling, reference, current periodicals

Student conference area (conference/small group activity)
Seminars; small group discussions, listening, and viewing
Divisible

Classroom
Instruction, group projects

Professional stations or office space

Work area (including work stations for other employees)

periodical storage

Dark room

Stack Area
Open shelving for print and non-print materials

Professional Library

Computer Laboratory

- SQUARE FOOTAGE

Elementary	Middle School or Junior High	High School
200-300 sq. ft.	300-400 sq. ft.	300-600 sq. ft.
1600 sq. ft. or 10% of pupils at 40 sq. ft. whichever is greater	3000 sq. ft. or 15% of pupils at 40 sq. ft. whichever is greater	4800 sq. ft. or 20% of pupils at 40 sq. ft. whichever is greater
At least 1 at 240 sq. ft.	At least 2 at 240 sq. ft.	At least 3 at 300 sq. ft.
600-750 sq. ft.	600-750 sq. ft.	600-750 sq. ft.
120-200 sq. ft. per station	120-200 sq. ft. per station	120-200 sq. ft. per station
[redacted]		
[redacted]		
100-200 sq. ft.	100-200 sq. ft.	100-200 sq. ft.
250-350 sq. ft.	350-450 sq. ft.	500-600 sq. ft.
400 sq. ft.	400 sq. ft.	400 sq. ft.
-----	600-750 sq. ft.	600-900 sq. ft.

Design Considerations

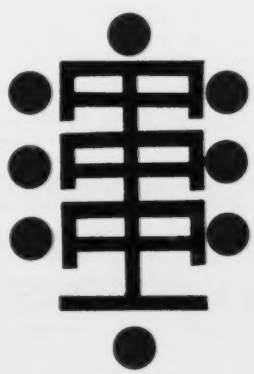
The design of the media centers will be influenced by the philosophy of the school or - in the case of remodeling an old building - by the available alternatives, which will dictate location, out of school access, degree of collection security, etc. Given these factors the Media Center should be

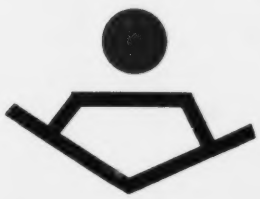
Located centrally or in largest accessible area
Accessible and available for use at all times
Away from noisy areas

- Reading-Viewing-Listening Area
  - Seat minimum of 50 or 15% of student body whichever is greater (many school programs will require a much higher percentage)
  - Be broken by shelves, etc., if over 100 chairs to meet minimum seating needs
  - Include
    - Entrance, circulation, catalogs, periodical index areas
    - Free reading area and periodical display
    - Individual carrel seating. Opinions vary concerning the number of carrels needed
    - Table seating - no more than 4 seats per table except at index table or picture book tables
    - Space to house collection
      - Print materials (e.g. books, magazines)
      - Audiovisual software collections (e.g. filmstrips, tapes)
      - Reference materials
      - Reserved materials
  - Provide a storytelling area for at least 30 pupils at the elementary level.

- Conference or seminar rooms (where users may talk, read, listen, view, discuss)
  - Movable walls between multiple conference rooms
  - Furnished with
    - One table seating up to 8
    - Chairs
    - Chalkboard
    - Screen
    - Shelving desirable

SPACE ALLOCATIONS



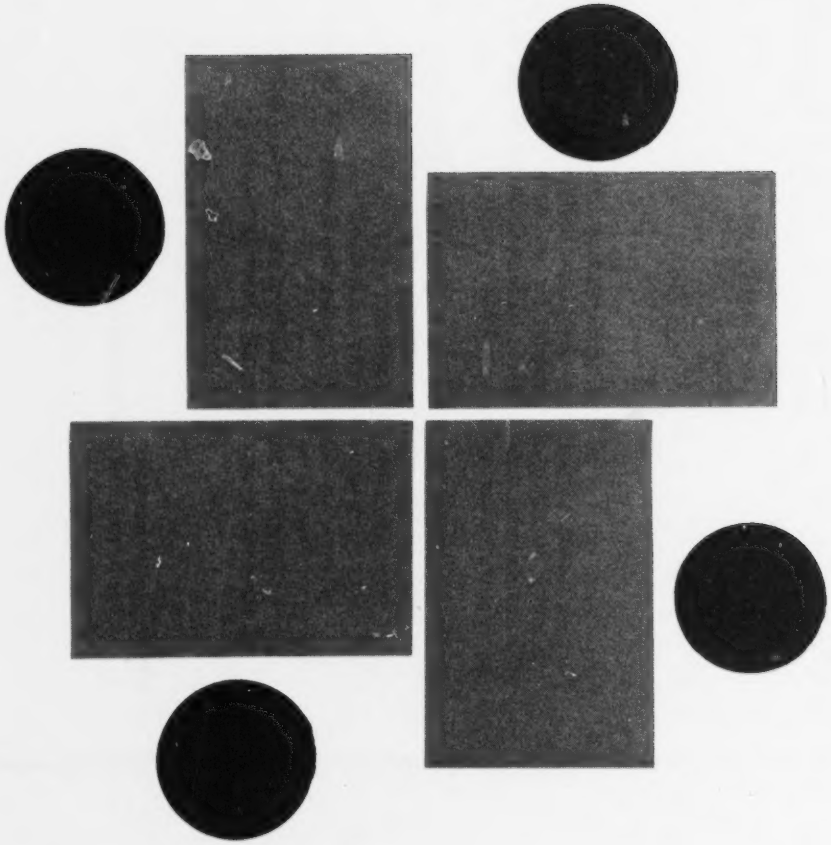


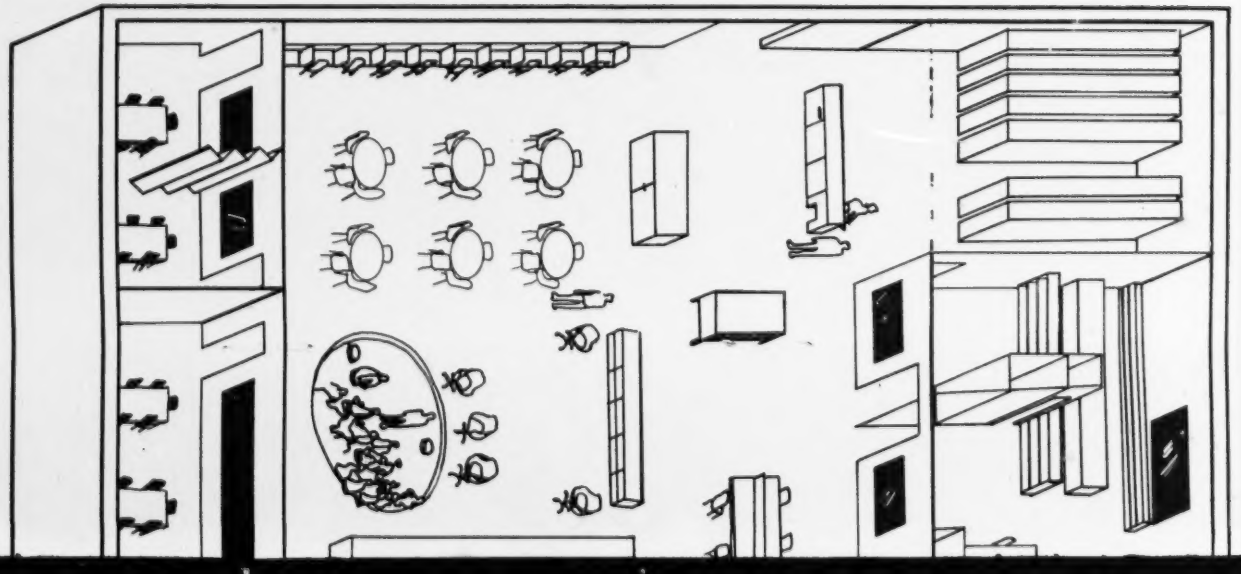
- Small group listening and viewing areas
  - Equipped with appropriate seating, screens, audiovisual equipment
  - Acoustically treated
  - May overlap with conference or seminar rooms and reading-viewing-listening area

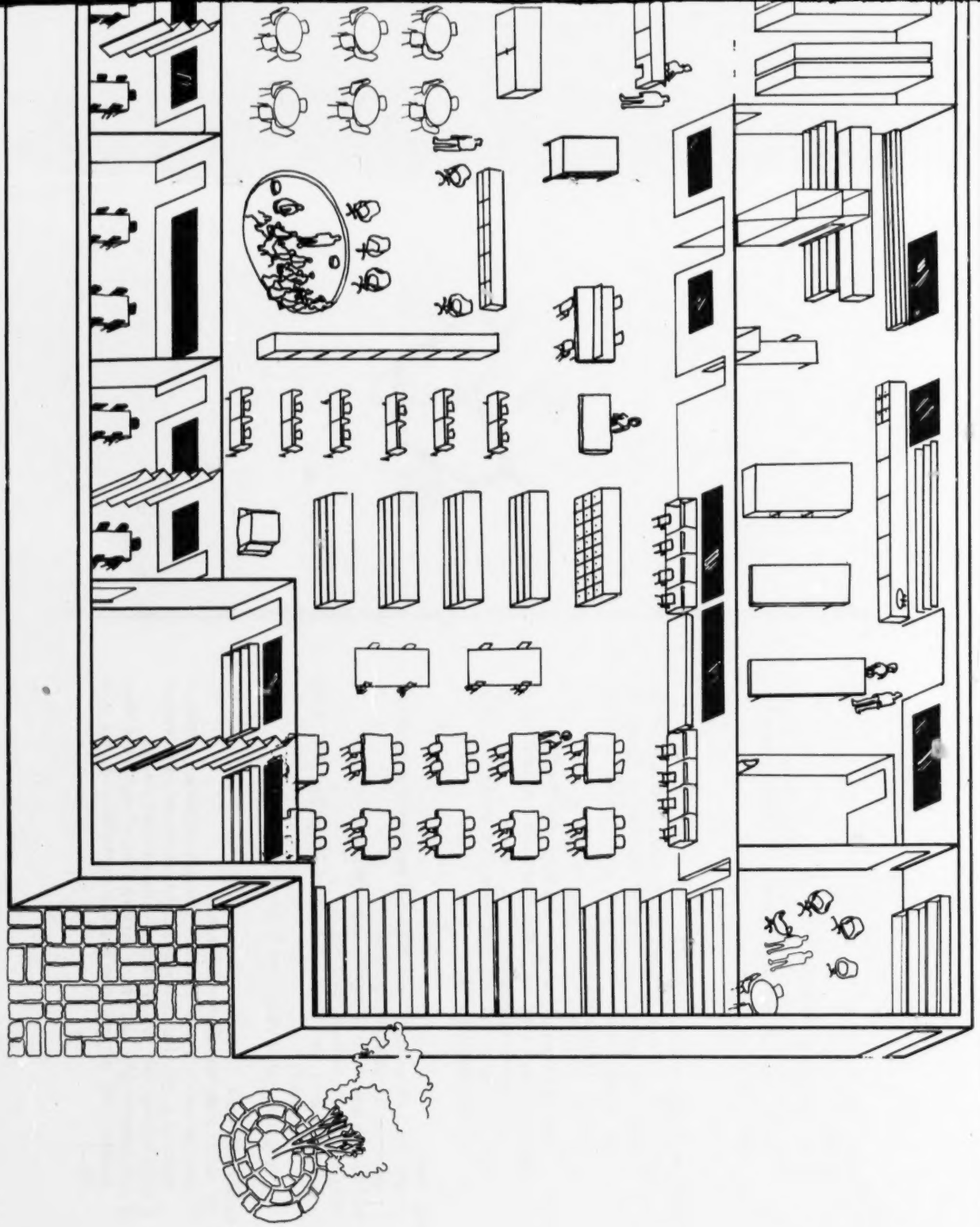
- Department suites or satellite centers (Such centers are not recommended for most schools because the need for larger staffs and collections and the overlapping of subject areas negates the advantages. Whenever space or other contingencies result in the formation of such centers, staff members should be part of the media center staff.)

  - Some schools, especially large secondary schools, may include department suites providing for
    - Individual and group activities
    - Contacts between faculty and students
    - Temporary storage for materials and equipment on loan from the center
    - Stations for librarians, teachers, and/or clerks or technicians
  - Location preferably adjacent to the media center

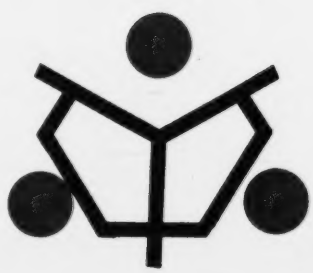
- Media center classroom
  - Directly accessible to main reading-viewing-listening area
  - Flexible space



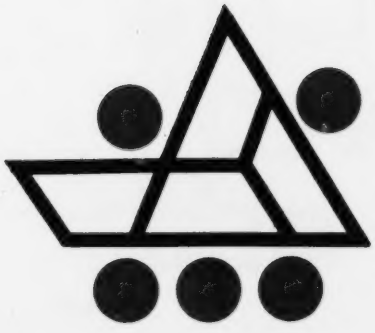




- Work area
  - Professional staff area can be
    - Separate office(s)
    - Part of production-processing area
    - Station(s) for professionals in major reading-listening-viewing areas. This should be in addition to other office space when possible.
  - Production and/or processing areas
    - Sink, water resistant counters, work tables, work stations for clerks and technicians, cabinets and files designed for the supplies needed in that area with electrical outlets at all work stations and counters
    - Door to corridor - should have door to main reading-listening-viewing room or to specialist's office
    - Capable of visual supervision from main room if students will be working there unsupervised
    - May need to provide for dark room, TV production, other special considerations
- Storage area
  - Storage for back issues of periodicals and audiovisual materials not shelved in the main reading room
  - May provide some book storage for large collections
  - Storage for media hardware including
    - Decentralized in large multistoried buildings for some equipment
    - Long-term loan to classrooms for some equipment
- Access and aisle space
  - 30" to 36" aisles between rows of shelves
  - 5' aisles between a row of shelves and furniture involving seating or traffic (e.g. side of table at which chairs are located, card catalog)
  - 5' aisles between two parallel tables with back to back seating
  - 3' aisle between table and wall or between a row of shelves and other furniture that involves no seating or major traffic (e.g. end of a table)



TECHNICAL CONSIDERATIONS



Light

- Windows should not admit distracting light nor detract from space utilization
- Lighting system should be designed to supply the necessary light for each particular task
  - Illumination at working surface adequate for task
  - Illumination in stack areas adequate to allow reading titles on lower shelves comfortably
- Light control should permit the use of audiovisual equipment by the utilization of
  - Dimmers
  - Down lights
  - Drapes or darkening shades

Sound

- Floors should be carpeted as the best single method of controlling sound
- Adequate space between various areas should be provided to aid in the elimination of sound control problem
- Ceilings and walls should be acoustically treated

Electrical and Electronic

- Electrical service should be flexible and accessible in all areas of the media center with a minimum of one duplex outlet for every 150 square feet, evenly distributed throughout the center
- Special installation will be necessary for
  - Intercom
  - Television systems
  - Computer assisted instruction
  - Carrels
  - Dial Access
  - Radio

Audiotutorial
Language laboratories

- Adequate provision should be made for any projected special installations

Heating and Ventilation

- Heating and ventilation systems should maintain a draft free and a quiet comfort level during all seasons through accepted design standards and adquate controls. Research shows that a variation of only two degrees above the desired 72 °F temperature results in a 20% decrease in learning rate, making a strong case for year-round air-conditioning

Projection

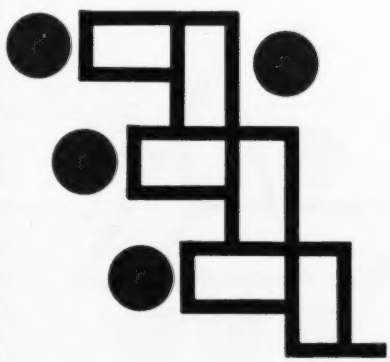
- Projection screens should be of a size which is at least as wide as one sixth the greatest viewing distance
  - Screens should be placed so that no viewer is farther than 6 times the screen width nor closer than 2 times the width
  - Screens should be positioned in the space so that viewers are within the optimum viewing area of the projected image and should be raised high enough so that the furthest viewer has an unrestricted view
  - Screens should be mounted so that they can be tilted to eliminate keystoning

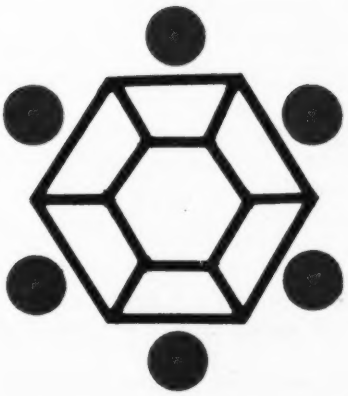
- Fixed and movable speakers should be placed close to the projection screen and at (or above) the ear level of the viewer-listener

- TV monitors should be placed so that the viewers are no further than 12 times or closer than 4 times the diagonal measurement of the tube

Visual Control

- Conference rooms, work areas, reading-viewing-listening area, and stack areas should be subject to easy visual control by staff





Access and Security

- Student access to materials and equipment should be as open as possible
- Integrity of the collection may be protected by
  - Visual control
  - Materials such as non-print items and back issues of periodicals in closed or limited access areas near the charging area
  - Exit placement with check-out stations away from stack areas
  - Reserved materials at the charging area

Esthetic

- Interior finishes should be carefully coordinated with both the artificial and natural lighting in each area
- Color should be used to contribute to a desirable learning environment
- The media center should have warmth and genuine appeal

Flexibility

- Center should be adaptable to meet the needs of a changing educational program and more sophisticated equipment
- Center should allow for expansion

Functional relationships and design considerations are closely interrelated with the furniture and equipment available or planned. It is separated here for editorial convenience.

Carefully drawn specifications can help insure the quality and life of furniture and equipment. It can provide for interchangeability of component parts which means fewer varieties of lamps, etc., and easier expansion of storage. It can ease problems by providing appropriate size and height of storage and work areas and by providing for the preferred method of storage.

Furniture and Equipment

Keys (card catalog, indexes, references)

Card Catalog

- Should come from a reliable library furniture company
- Should be purchased in expandable units
- Should not be above the average user's sight line

Indexes and reference

- A table of adequate size to hold the periodical indexes should be provided in all media centers
- Other reference material may be included in a reference section or on index table(s) or may be interfiled with non-reference materials

Charging Desk

- A 3' x 5' or 3' x 6' charging desk is usually adequate for a small library media center. It should provide for filing of 5" high by 3" wide cards
- Elementary school media centers should have sitting height charging desks
- A unit charging desk should have a card storage well for cards 5" high by 3" wide, a book return unit with depressible book truck (book truck with depressible platform), and space for handling of materials

Seating

Carrels

- A shelf should be provided in carrels
- The visual barrier should be above eye level of average seated student
- Wet carrels should provide for adequate student work space
- Carrels for use with dial access, rear projection devices, etc., require special provisions and lessen flexibility. Schools should consider other alternatives before deciding on such carrels.

Tables and chairs

Apronless tables seating no more than 4 students should be preferred
The most desirable rectangular table is 3' by 5'
4' round tables are esthetically pleasing, but provide less usable working surface
Trapezoidal tables lend themselves to grouping

Shelving

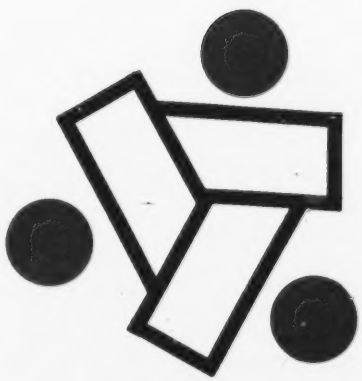
All shelving for materials or software should be adjustable with "adjustable" being defined as all shelves except bottom one being capable of being moved up or down without being unloaded. May be wood or steel, double or single faced. Desirable to have backs or partial backs on shelves whether double or single faced
Depth and height of shelves should vary according to use and size or patrons
Periodical storage alternatives. An average of one running foot per title per year can be assumed
Narrowly spaced flat shelves
Pamphlet boxes on shelves
Bound volumes
Microfilm cabinets

Book shelving

Estimated capacities for 3' shelf when full
Hardback books of average size . . .30
Reference books 18
Picture books (including dividers) . .60
Paperbacks
Racks displaying front covers
Picturebooks
Deep, divided, "picturebook" shelves
Bin storage - comparable to record storage

Audiovisual materials

Boxes, notebooks or shelf inserts interfiled with printed materials
Specialized storage by medium (specialized shelving or storage should be as flexible and open as possible to allow for adequate access and for subject classification of materials)



Filmstrips
- Expandable cabinets with track rather than pigeonhole storage preferred
- Shelf inserts with track rather than pigeonhole storage
- Filing boxes for interfiling with books

Sound filmstrips with cassettes, reel tapes, or discs
- Cartons on regular shelving

Slides
- Exapndable cabinets
- Notebooks
- Trays

Disc recordings
- Bins
- Picturebook shelving

Tape recordings
- Cartons on shelves
- Cassettes in notebooks
- Special cabinets
- Shelf inserts

Microfilm and 8mm loop
- Cartons on shelves
- Expandable cabinets
- Shelf inserts

Art and study prints, posters
- Bins
- Vertical files
- Art print cabinets
- Map files

Audiovisual equipment storage

Cart for each major item, with extension cord. Storage area should be provided for all circulating equipment and carts not currently assigned to classrooms.

Deep (about 18") shelves capable of being adjusted when empty; or large storage cabinets. Some schools may wish to consider locked storage for such equipment.

AV. production equipment and furniture

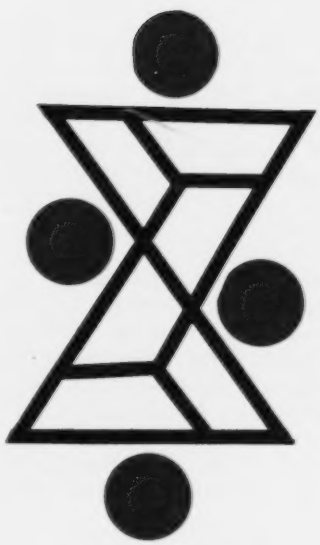
as listed in **Plan for Progress . . . in the Media Center, K-6,** and **Plan for Progress . . .in the Media Center, 7-12.**

Other furniture

Professional or clerical desks may need deep, full suspension drawer with trays for filing 5" x 3" cards

Counter, work table with storage, and shelving to facilitate all processing and repairing, to be done in a particular building. Space for storage of materials and for work should be considered for

- Mounting book jackets
- Preparing and applying pockets, date slips, classification numbers
- Checking and clipping newspaper articles
- Doing descriptive cataloging and classification of print and non-print materials
- Assigning subject headings for pamphlets, clippings, other unclassified material
- Typing and duplicating cards
- Preparing bibliographies
- Mending and binding materials - this activity should probably be quite limited at the building level
- Receiving materials, checking against invoices
- Preparing orders for materials, equipment



Special Installations

This list of special installations is not complete and is not meant to promote such installations. School officials interested in exploring the potential contributions of special installations should study appropriate, references cited in the bibliography, should visit facilities with similar installations, and should confer with school officials who have used them, with sales representatives, and with media professionals with pertinent experience. Particularly important variables to consider are cost, space, sophistication of specifications, programming, rapid obsolescence, and student population. The strengths and weaknesses listed under each type of installation are meant only to be indicative, rather than definitive. In addition to the weaknesses noted, these installations tend to be impersonal.

CAI (Computer Assisted Instruction)

- COMPUTER ASSISTED INSTRUCTION is usually available to the student in the form of typewritten print-out or a visual display on a tube. Often used for mathematically-oriented subjects in "drill and practice," the computer can also be used to teach language arts and the sciences. Increasing use is being made of branched programmed instruction and simulated situations.
  - Strengths
    - Permits instant feedback of results
    - Allows branched programs to adjust, based on a student's progress
  - Weaknesses
    - Expense of computer and terminals
    - Lack of variety in software

A-T (Audiotutorial Lessons)

- AUDIOTUTORIAL LESSONS - Carried out in a study carrel, this form of instruction has many variations. Basically the heart of the system is an audio tape that talks a student through a lesson and indicates critical points to which he should give attention. Besides the tape, slides, films, worksheets, and actual objects are assembled for him to study. The format follows linear programmed instruction.
  - Strengths
    - Permits individuals to pace their own learning

Uses a variety of media to maintain interest

Weaknesses

Requires a variety of equipment

Few commerical lessons are available

DIAL ACCESS

•DIAL ACCESS - A series of audio tape playback decks, accessible by dialing a two or three digit number from a study carrel, make up this system. The number of booths is almost unlimited, but the number of available programs is determined by the audio playback facilities--usually one per program. Some newer systems provide both audio and video through the use of video tape.

Strengths

Large numbers of students can be reached

Weaknesses

Lack of backtracking

Latecomers must take lessons in progress

Lack of variety of prepared programs

LANGUAGE LABORATORY

•LANGUAGE LABORATORY - In many ways this installation is similar to a dial access system. Carrels, each connected to a central control system, can receive a variety of audio taped programs. In a language lab, however, provision is made for the teacher to monitor student progress, and carry on dialogue with the student, diagnosing errors and offering suggestions for better language learning. An average sized system would contain 20-30 carrels.

Strengths

Each student can be supervised as he practices speaking

Students can progress at their own pace

A student can hear his own voice through earphones as he speaks

Weaknesses

Relatively high installation cost

Reluctance of teachers to modify their habits to make full use of the lab

CLOSED CIRCUIT SYSTEMS

•CLOSED CIRCUIT SYSTEMS - These are for sound, or television distribution within a school building or school system. Announcements of school activities as well as instructional programs can be fed to a number of classrooms simultaneously. Writing, directing, and producing radio or television programs gives students practice in important skills, so that indirectly the system is providing opportunity for instruction.

Strengths

Large numbers of students can be reached

Students incorporate a number of skills in producing programs

Weaknesses

Relatively high cost to build

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